WHAT IS CLAIMED IS:

1. A device comprising:

a theta-theta coordinate stage that includes a rotary arm drive and a rotatable platform, wherein an object to be imaged is placed on the rotatable platform;

an imaging system;

an image rotator; and

a control system coupled to the theta-theta coordinate stage and the image rotator, wherein the control system controls the image rotator and causes the image rotator to rotate an image to compensate for rotation of the rotatable platform and preserve orientations of features in the image.

2. The device of claim 1, wherein the control system applies control signals to the theta-theta coordinate stage to control movement of the object and applies control signals to the image rotator to compensate for the rotation of the object.

3. The device of claim 2, further comprising an operator interface including a monitor for viewing the image.

4. The device of claim 3, wherein the operator interface further comprises a control coupled to send to the control system commands indicating a desired motion of the image viewed on the monitor.

5. The device of claim 1, wherein the rotatable platform has a rotation axis that intersects a rotary drive axis.

6. The device of claim 5, an optic axis of the imaging system is moved along the axis of one of the rotary drives or images coincident to one of the rotary axis.

7. The device of claim 1, a setting of the rotary drive indicates a displacement of the rotary drive relative to a zero displacement position.

8. The device of claim 1, further comprising an orientation monitoring system that measures an angular displacement of the rotatable platform relative to a zero angular displacement setting.

9. The device of claim 1, further comprising a video camera and a display monitor.

10. The device of claim 9, wherein the image rotator comprises an image capture and image processing system that captures the image from the video camera and rotates the image by an amount selected by the control system.

11. The device of claim 1, wherein the imaging system comprises a microscope.

12. The device of claim 11, wherein the image rotator comprises a rotatable dove prism on an optical axis of the microscope.

13. The device of claim 11, further comprising a video camera and a display monitor.

14. The device of claim 13, wherein the image rotator comprises a rotatable dove prism on an optical axis of the microscope.

15. The device of claim 13, the image rotator comprises software which is capable of rotating a video image from the video camera.

16. The device of claim 1, wherein the imaging system comprises a scanning probe microscope.

17. The device of claim 1, wherein the imaging system comprises a scanning microscope.

18. The device of claim 17, further comprising an image processing system and display monitor.

19. The device of claim 17, wherein the image rotator comprises a set of beam deflectors that changes orientation of an area scanned on the surface of the object.

20. The device of claim 17, wherein the scanning microscope is a scanning electron-beam microscope.

21. The device of claim 17, wherein the scanning microscope is a scanning ion-beam microscope.

22. The device of claim 1, wherein the imaging system comprises a confocal microscope.

23. The device of claim 22, further comprising an image processing system and a display monitor.

24. The device of claim 1, wherein the image rotator comprises a rotatable dove prism.

25. The device of claim 1, wherein the image rotator comprises software which allows rotation of a digitized image.

26. The device of claim 1, wherein the control system comprises a processor executing a module that converts Cartesian coordinate input commands relative to an image of the object to theta-theta coordinate stage commands and image rotator commands.

27. A method for viewing an object, comprising:
mounting the object on a theta-theta coordinate stage;
viewing an image of a region of the object;
using the theta-theta coordinate stage to move the object; and
rotating the image of the object as the object moves so that features in the image retain a fixed orientation while the object rotates.

28. A measuring device comprising:
a theta-theta coordinate stage including a rotatable platform for mounting of a sample;
an alignment system including an edge detector and a processing system that identifies a position of the sample from measurements that the edge detector takes while the theta-theta coordinate stage rotates the sample;
a measurement system for measuring a physical property of a portion of the sample that the theta-theta coordinate stage moved into a field of view of the measurement system;
an imaging system for obtaining an image of a portion of the sample that the theta-theta coordinate stage moved into a field of view of the imaging system; and
an image rotator that rotates the image to compensate for rotation of the sample by the theta-theta coordinate stage.

29. The measuring device of claim 28, wherein the alignment system further comprises a pattern recognition module that identifies a feature in the image as

rotated by the image rotator and from identification of the feature, determines a position of the sample.

30. The measuring device of claim 28, wherein the imaging system includes a video camera and the image rotator rotates a video image from the video camera.

31. The measuring device of claim 28, wherein the image rotator comprises an optical element for rotating the image.

32. The measuring device of claim 28, wherein the alignment system further comprises a pattern recognition module that identifies a feature in the image and determines a position of the sample.

33. A measuring method comprising:

mounting a sample on a theta-theta coordinate stage, wherein the sample as mounted has a position known to a first accuracy;

measuring edge locations of the sample while the theta-theta coordinate stage rotates the sample;

prealigning the sample by determining the position of the sample from the edge locations, wherein the prealigning determines the position of the sample to a second accuracy;

using the theta-theta coordinate stage to move the sample so that a view area of an imaging system contains a first feature;

rotating an image formed by the imaging system to compensate for rotation of the sample by the theta-theta coordinate stage;

using a pattern recognition module to process the rotated image and identify a first location corresponding to the first feature; and

measuring a property of the sample at a point having a position identified relative to the first location.

34. The method of claim 33, further comprising:

using the theta-theta coordinate stage to move the sample so that the view area of the imaging system contains a second feature;

rotating the image formed by the imaging system to compensate for a rotation of the sample by the theta-theta coordinate stage while moving to the second feature;

using the pattern recognition module on the rotated image to identify a second location corresponding to the second feature; and

using identification of the first and second locations to determine the position of the sample to a third accuracy.

35. The method of claim 33, further comprising:

using the theta-theta coordinate stage to move the sample so that a plurality of points are sequentially positioned for measurement of the property of the sample at the points; and

sequentially measuring the property of the sample at the measurement points.

36. A device comprising:

a rotary platform for rotating the object;

one or more secondary rotary drives for moving a sensor across the rotating object;

one or more sensors mounted to one or more rotary drives;

a control system for controlling the position of the object while acquiring the sensor data.

37. The device in claim 36, whereas at least one of the sensors is used to inspect the top surface of the object, and at least one sensor is used to inspect the bottom surface of the object.